

PLAN OF DEVELOPMENT

Crescent Creek Road Right-of-Way Project
Garfield County, Utah

Prepared for:

U.S. Department of the Interior, Bureau of Land Management, Richfield Field Office

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INTRODUCTION

This Plan of Development (POD) has been prepared in support of an application filed by Bromide Mining, LLC (Bromide) to the U.S. Bureau of Land Management (BLM), Richfield Field Office. This application is for a Grant of Right-of-Way (ROW) to use, improve, and maintain a 1.31-mile segment of the existing Crescent Creek Road (BLM Route 14000), and, in addition, to create a new 0.31-mile segment of road on lands managed by the BLM. The project is referred to as the Crescent Creek Road ROW Project (Project) and is located in the Henry Mountains in Garfield County, Utah. The purpose of the POD is to provide an overview, description, and general environmental resource protection measures for the Project; it is intended to be a “living document” that will be updated during the progression of the Project, as needed.

Project Background

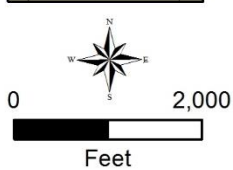
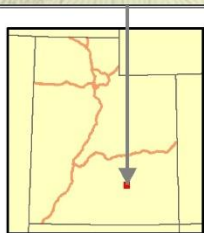
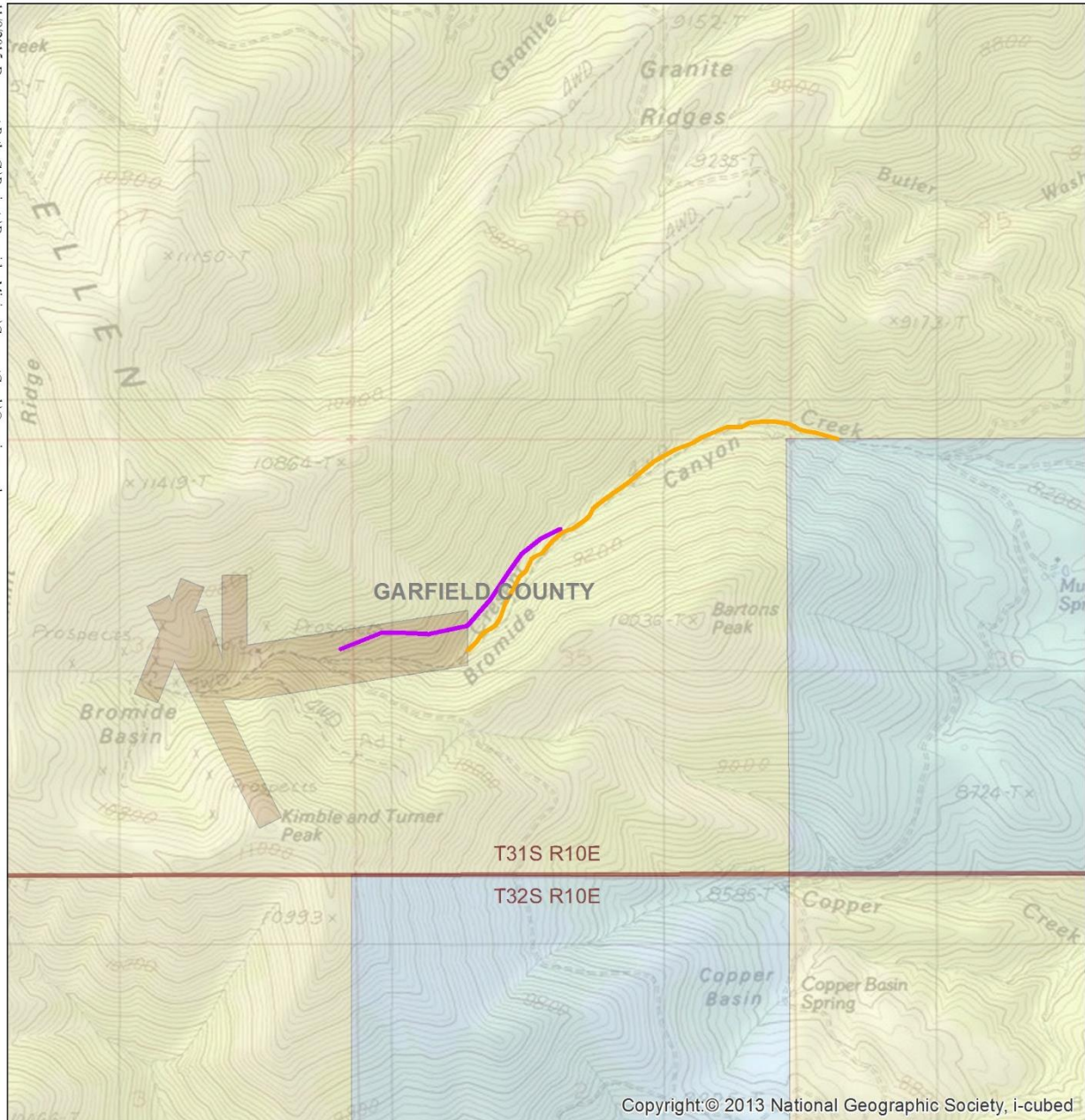
Crescent Creek Road was developed in the late 1800s to provide access to mining claims in the Bromide Basin area of Henry Mountains. The mining claims have had various owners throughout the years. Bromide purchased the patented claims at the west end of Crescent Creek Road in 2008 and has used Crescent Creek Road to access their mine claim. During the winters of 2012 and 2013, Bromide snow plow operators removed snow from the road, inadvertently altering the road in the process. Graded road material was cast to the south side of Crescent Creek Road into the trees and shrubs along the banks of Crescent Creek; in some locations, this activity impacted Crescent Creek’s course.

The BLM identified the unauthorized changes to the road, including unnecessary down-cutting to the road base and associated disturbance outside of the road prism for portions of the road on BLM-administered lands. Review of BLM records determined that there was no Grant of ROW or authorization in place for Bromide to make changes to the road. As a result, the BLM issued a trespass notice that required Bromide to pay a fine, repair damages caused to the road and surrounding area by removing soil spoils and restoring the creek channel, and acquire a Grant of ROW to use and maintain Crescent Creek Road. Per these instructions, Bromide paid the fine, initiated cleanup and reclamation activities in October 2015, and is currently filing a Supplemental Form (SF)-299 and draft POD to support a request for a Grant of ROW to continue to use and maintain Crescent Creek Road. Additionally, Bromide is proposing an alternative, parallel spur road, approximately 0.31 mile in length (located on BLM-administered lands), as an option to provide access in place of using a portion of Crescent Creek Road.

Project Location

The 1.31-mile segment of Crescent Creek Road and the new road segment associated with the Project are located approximately 5 miles west of State Highway 95, roughly 24 miles south of Hanksville, Utah, within Bromide Basin. Bromide Basin is on the eastern flank of the Henry Mountains at the base of the South Summit Ridge and Mount Ellen. Bromide Basin includes the head of Crescent Creek which is a perennial stream that flows through Bromide Canyon where it empties into North Wash and eventually into the Colorado River. Elevation along the 1.31-mile segment of road within the Project area is approximately 8,250 feet at sea level.

Crescent Creek Road follows the north side of Bromide Canyon. The new road segment would branch off of Crescent Creek Road near the west end of the road (Figure 1). The Project is within the area covered by the Mount Ellen U.S. Geological Survey 7.5-Minute Quadrangle and within Sections 25, 26, and 35 of Township 31 South Range 10 East.



Legend

- Crescent Creek Road
- New Road Segment
- BLM
- Private
- SITLA

Project Overview

*Crescent Creek Road
Right-of-Way Project*

Figure 1



PURPOSE AND NEED

Bromide needs authorization in the form of a Grant of ROW from the BLM for permanent access across BLM land to Bromide-owned patented mine claims. Currently, the existing Crescent Creek Road is the only reasonable solution; however, improvements to the road are needed to facilitate year-round access, increased use, and minimized environmental degradation. It is anticipated that the road will need to support several passenger vehicle trips per day and large haul trucks to transport workers and equipment to the mines and workers and ore offsite. This road is needed year-round; therefore, it will require plowing during the winter months.

Bromide is also requesting an alternative access road to their mine claim that would require a Grant of ROW from the BLM. The access road would be located higher, along the north slope of Bromide Canyon, parallel to Crescent Creek Road, and would provide for a different entry point onto Bromide property. This would allow Bromide additional space on their property to store spoil materials from mining operations and avoid transporting those materials to an offsite location. If approved, a portion of Crescent Creek Road would no longer be needed for access to the Bromide property and could potentially be reclaimed.

PROJECT DESCRIPTION

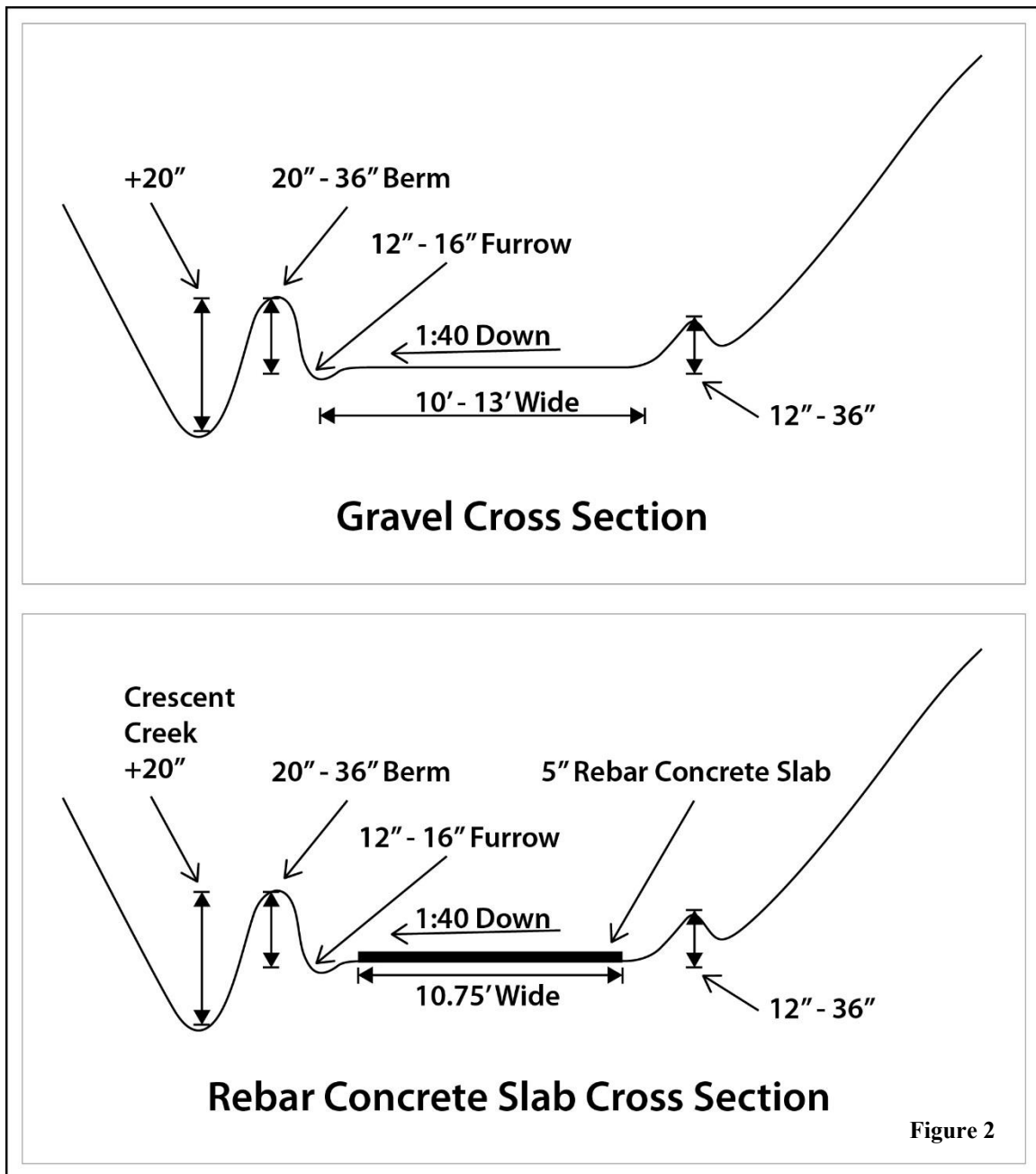
To meet the aforementioned needs, Bromide is planning to improve the exiting road, create a new segment of road, maintain the existing and new road segments, and, at some point, abandon the roads in place.

Existing Road Improvements

The following improvements are planned for the existing Crescent Creek Road:

- Grading to improve drainage and smooth the road surface. The road will be designed to support drainage off of the road surface into a small drainage swell on the south edge of the road (Figure 2).
- Placement of 1- to 3-foot-high berms on each side of the road to provide safety. The berm on the north side of the road would catch naturally falling debris sliding off of the steep slopes and keep it from entering the road prism. The berm along the south side of the road would create a buffer between the road and stream. Openings (side drainage channels) will be made in the berms to drain water from the roadway to the creek at approximately 170-foot intervals (Figure 2).
- Installation of drainage pipes (culverts) where small ephemeral drainages cross the road. These pipes will be 6–8 inches in diameter, installed 8–15 inches below the road surface, placed with a 30-degree slope, and extend 20 inches beyond the south slope of the berm.
- Development of two passing areas approximately 15 feet by 100 feet (Figure 3, Stations 13.2 and 17.4), a road material storage area (Figure 3, Station 17.3), one sand and gravel storage area (Figure 3, Station 17.5), and a turnaround and three parking stalls near the Bromide property gate (Figure 3, Station 18.5).
- Seeding of disturbed areas adjacent to the road, particularly areas with potential for erosion.
- Development of three small temporary storage areas.
- Resurfacing of the road with an approximately 10.75-foot-wide, 5-inch-thick slab of reinforced concrete. The sand and gravel for the concrete will be native material crushed on site from the mine (Figure 2).

Improvements to the road will be completed using a grader, bulldozer, and trackhoe, as appropriate. Haul trucks will be used for moving concrete materials when needed. Most improvements will take place during the spring, summer, and fall of 2016.



New Road Segment Construction

The new road has not been engineered at this point; however, it is anticipated that it will be approximately 15 feet wide with a gradient of 28.5 percent, designed for proper drainage, and surfaced with concrete. Uphill and downhill slopes will be stabilized to prevent erosion. The segment of Crescent Creek Road that is west of the branch for the new road will be decommissioned and reclaimed following construction of the new road segment. A new parking and turnaround, as well as a Bromide locked gate, will be placed at the east end of the new segment where it meets the existing Crescent Creek Road.

Creation of the new road segment will be completed using a grader, bulldozer, and trackhoe, as appropriate. Haul trucks will be utilized for moving material as needed. No time frame is set for creation of the new road, but if approved, it is anticipated that work would begin spring or summer of 2016.

Planned Maintenance of New and Existing Road Segments

Due to high use and the remote nature of the road segments, Bromide will assume responsibility for regular maintenance of the road for the duration of their operations. Maintenance activities will include:

- Regular grading, as needed, with a grader or bulldozer.
- Snow removal in the winter months with a large mechanized snow blower, snow plow, grader, or bulldozer, as needed.
- Repair and replacement of culverts, as needed.

Reclamation and Abandonment

At the completion of mining activities or the expiration of the Grant of ROW, the road will be left in place in good condition. This will include a smooth road surface, proper operation of culverts, and appropriate drainage. Seeding of disturbed areas will be completed.

RESOURCE PROTECTION MEASURES

Potential impacts to resources along the Project will be minimized via resource protection measures integrated into Project construction methods and techniques and through location- or resource-specific mitigation measures.

Vegetation

Prior to entering the Project ROW for the first time, all construction vehicles would be cleaned of soil and vegetative debris to avoid the transfer of noxious weeds to the Project ROW.

Areas identified by the BLM would be seeded following construction activities using seed mixtures and standards, as recommended by the BLM.

Wildlife Resources

If construction of the new road segment were to occur during the breeding season (March–August) for migratory birds and raptors, a pre-construction survey would be conducted to identify active nests within the Project area. Should any active nests be identified, they would be reported to the BLM and appropriate construction buffers placed on the nest, as needed. Work within these areas would not occur until approval is acquired from the BLM.

Soils and Erosion Control

Where temporary changes in contours occur during construction along the road, these areas would be returned as feasible to near pre-construction contours through reshaping, as required by the BLM.

Best Management Practices related to erosion and sediment control measures would be applied where deemed necessary; these erosion and sediment control measures would be outlined in the Storm Water Pollution Prevention Plan that would be developed for the Project.

Cultural Resources

The area has been surveyed for cultural resources and none were found within the Project alignment; however, if during construction, maintenance, and/or operations any cultural resources (historic or prehistoric site or object or human remains) are discovered, they will be immediately reported to the authorized BLM officer. All operations will be suspended in the immediate area of the discovery until the BLM issues written authorization to proceed. An evaluation of the discovery will be made by the BLM authorized officer to determine appropriate actions to prevent the loss of significant cultural or scientific value. The authorized BLM officer would have final say on proper mitigation measures.